# Approach to Reduce Reverberation Time of Korean Traditional Drum, Jang-gu

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Jang-gu, the Korean traditional drum, is an instrument that was originally played outdoors. But when it is played in modern indoor theaters, the reverberation time of the sound is prolonged, making it difficult for Jang-gu to be in harmony with the sound of other instruments. Thus, we have explored methods to reduce reverb time in order to improve the quality of performance of Jang-gu. One is to use a mute ring which is used to reduce the sound of the western drum. We found that the mute ring also reduces the reverb time of Jang-gu. Then, we tested various materials which are usually used for buildings to find better material which reduces reverb time. As a result, the anti-vibration pad was the most effective while keeping the unique tone of Jang-gu. We expected that the original mute ring which causes destructive interference would work best, but contrary to expectations, anti-vibration pad that absorbs vibration was most effective. After these two experiments, we also wanted to see if a mute ring made out of anti-vibration pad could produce the same effect as sound conditioning. Both experimental and survey results showed that it had a similar effect to the sound control. We hope that our research will contribute to the development of Korean traditional music by becoming useful research that can be applied to other musical instruments in addition to Jang-gu.

**Awards Won:**